DEPARTMENT OF COMMERCE

RADIO SERVICE BULLETIN

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CONTENTS

	Page
Abbreviations	1
New stations	2
Alterations and corrections	5
Miscellaneous:	
Amateur radio stations restricted in communication with commercial or Government stations	12
Operator's license suspended	12
New York Harbor weather conditions transmitted by Marion and Tuckerton stations	12
Change in time signal of Wellington, New Zealand	12
Change in wave length of Flamborough radio compass station	12
Miscellaneous—Continued.	
San Francisco and Blunts Reef Light Vessels fog signals	12
Experimental broadcasting of ice reports by Scheveningen station	12
Regulations governing the use of radio on foreign warships in Grecian waters	13
Change in wave length of Karachi station	13
Standard frequency stations	13
Cooperative investigation of radio wave phenomena	14
Standard radio frequency transmissions, April to July	15
References to current radio periodical literature	16

ABBREVIATIONS

The necessary corrections to the List of Radio Stations of the United States and to the International List of Radiotelegraph Stations, appearing in this bulletin under the heading "Alterations and corrections," are published after the stations affected in the following order:

Name = Name of station.
Loc. = Geographical location. O = west longitude. N = north latitude. S = south latitude.
Call = Call letters assigned.
System = Radio system used and sparks per second.
Range = Normal range in nautical miles.
W. l. = Wave lengths assigned: Normal wave lengths in italics.
Service = Nature of service maintained:
PG = General public.
PR = Limited public.
RC = Radio compass station.
FS = Fog signal.
P = Private.
O = Government business exclusively.
Hours = Hours of operation:
N = Continental service.
X = No regular hours.
F. T. Co. = Federal Telegraph Co.
I. W. T. Co. = Independent Wireless Telegraph Co.
K. & C. = Kilbourne & Clark Manufacturing Co.
R. C. A. = Radio Corporation of America.
S. O. R. S. = Ship Owners' Radio Service.
W. S. A. Co. = Wireless Specialty Apparatus Co.
C. w. = Continuous wave.
I. c. w. = Interrupted continuous wave.
V. t. = Vacuum tube.
FX = Fixed station.
U. S. L. = After operating company denotes that the change applies only to the List of Radio Stations of the United States.
Kc. = Kilocycles.
Fy. = Frequency.
A. c. = Alternating current.

40426—25†—1

NEW STATIONS

Commercial land stations, alphabetically by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1924, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave lengths	Service	Hours	Station controlled by—
Austin, Tex.[1]	WRA	1,600	FX	X	Texas Market and Warehouse Department.
Bolinas, Calif.[2]	KEL	96	FX	N	R. C. A.
Chignik, Alaska [3]	KJB	600, 725	P	X	Northwestern Fisheries Co.
Dundas, Alaska [4]	KEY	600, 700	P	X	Do.
Kahuku, Hawaii [5]	KIO	90	FX	N	R. C. A.
Loring, Alaska (Star of Greenland, moored vessel).[6]	KRI	600, 706	FX	X	Alaska Packers Association.
Metha Nelson (moored vessel) [7]	KMP	600, 700	FX	X	Do.
Miami, Fla.[8]	WRB	68.4	FX	X	E. G. Watts, jr.
Naknek, Alaska [9]	KOM	600, 725	P	X	Northwestern Fisheries Co.
Nushagak, Alaska [10]	KNJ	600, 725	P	X	Do.
Pinecrest, Fla.[11]	WRP	68.4	FX	X	E. G. Watts, jr.
St. Louis, Mo.	WPE		P	X	Goltra Barge Line.
Shakan, Alaska [12]	KVN	600, 700	P	X	Northwestern Fisheries Co.
Waterfall, Alaska [13]	KZN	600, 725, 1,650	P	X	A. & P. Products Corporation.
Wrangell, Alaska (Star of Russia, moored vessel).[14]	KNV	600, 706	P	X	Alaska Packers Association.

[1] Loc. O. 97° 44' 10", N. 30° 17' 00"; range, 100; system, composite v. t. telegraph.
[2] Loc. O. 122° 40' 45", N. 37° 54' 30"; range, 2,000; system, General Electric Co., v. t. telegraph.
[3] Loc. (approximate) O. 158° 22' 00", N. 56° 12' 00"; range, 150; system, R. C. A., 1,000.
[4] Loc. O. 138° 22' 10", N. 56° 21' 00"; range, 300; system, K. & C., 1,000.
[5] Loc. O. 157° 58' 33", N. 21° 42' 12"; range, 5,000; system, General Electric Co., v. t. telegraph.
[6] Loc. (approximate) O. 132° 30' 00", N. 55° 30' 00"; range, 200; system, Gray & Danielson, 240.
[7] Loc. (approximate) O. 133° 28' 00", N. 55° 45' 00"; range, 25; system, Marconi coil.
[8] Loc. (approximate) O. 80° 15' 00", N. 25° 48' 00"; range, 50; system, composite v. t. telegraph.
[9] Loc. O. 157° 02' 45", N. 58° 42' 30"; range, 150; system, R. C. A., 1,000.
[10] Loc. (approximate) O. 158° 25' 00", N. 58° 55' 00"; range, R. C. A., 1,000.
[11] Loc. (approximate) O. 81° 00' 00", N. 25° 40' 00"; range, 25; system, composite v. t. telegraph.
[12] Loc. O. 133° 29' 36", N. 56° 07' 30"; range, 150; system, R. C. A., 1,000.
[13] Loc. O. 133° 14' 30", N. 55° 17' 45"; range, 300; system, R. C. A., 1,000.
[14] Loc. (approximate) O. 132° 30' 00", N. 56° 30' 00"; range, 150; system, United States Navy, 1,000.

Commercial ship stations, alphabetically by names of vessels

[Additions to the List of Radio Stations of the United States, edition of June 30, 1924, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Name of vessel	Call signal	Rates	Service	Hours	Owner of vessel	Station controlled by—
Bridget [1]	KFVB		P	X	R. W. Carr	Owner of vessel.
Bustamente	KZBH				Philippine Insular Government.	Do.
D. E. Callender [2]	WRV		PG	X	Morrow S. S. Co	Do.
El Oceano	WNF	8	PG	X	Southern Pacific Co	Do.
Florence D	KZAY					
Hawaiian Standard.[3]	WTX	8	PG	X	Standard Oil Co. of California.	R. C. A.
Minnesota	WFM		P	X	Goltra Barge Line	Owner of vessel.
Missouri	WFD		P	X	do	Do.
Nunanu	KZBC					
Panay	KZBG		PG	X	Compania Maritima	Do.
Philip D. Block	WKC		PG	X	American Shipbuilding Co	
Pompey	KZBF					
Pronto	KZBD					
Star of Zealand	KDW	8	PG	X	Alaska Packers Association	Do.
Trader	KFEA	8	PG	X	R. McKernan	Do.
Wm. Boyce Thompson.	KDB8	8	PG	N	Sinclair Navigation Co	

[1] Range, 25; system, composite v. t. telephone and telegraph; w. l., 115.3, 600.
[2] Range, 150; system, Navy-R. C. A., 1,000; w. l., 600, 706, 800, 875; rates, Great Lakes service, 8¢ per word.
[3] Range, 150; system, R. C. A., 1,000; w. l., 600, 706, 800.

Commercial land and ship stations, alphabetically by call signals

[b—ship station; c—land station]

Call signal	Name of station		Call signal	Name of station	
KDHS	Wm. Boyce Thompson	b	KZBC	Nunanu	b
KDW	Star of Zealand	b	KZBD	Pronto	b
KEL	Bolinas, Calif.	c	KZBF	Pompey	b
KEY	Dundas, Alaska	c	KZBG	Panay	b
KFEA	Trader	b	KZBH	Bustamente	b
KFVB	Bridget	b	KZN	Waterfall, Alaska	c
KIO	Kahuku, Hawaii	c	WEV	D. E. Callender	b
KJB	Chignik, Alaska	c	WFD	Missouri	b
KMP	Metha Nelson (moored vessel)	c	WFM	Minnesota	b
KNJ	Nushagak, Alaska	c	WKC	Philip D. Block	b
KNV	Wrangell, Alaska (Star of Russia, moored vessel)	c	WNF	El Oceano	b
KOM	Naknek, Alaska	c	WPE	St. Louis, Mo.	c
KRI	Loring, Alaska (Star of Greenland, moored vessel)	c	WRA	Austin, Tex.	c
KVN	Shakan, Alaska	c	WRB	Miami, Fla.	c
KZAY	Florence D.	b	WRP	Pinecrest, Fla.	c
			WTX	Hawaiian Standard	b

Broadcasting stations, alphabetically by names of States and cities

[Additions to the List of Radio Stations of the United States, edition of June 30, 1924]

State and city	Call signal	State and city	Call signal
Arkansas: Camden	KFVC	Ohio:	
California: San Pedro	KFVD	Akron	WADC
Florida:		Cincinnati	WHSR
St. Petersburg	WHBN	Cleveland	WDBK
Do.	WIBC	Elyria	WGBL
Georgia: Columbus	WHBV	Mechanicsburg	WHBS
Illinois:		Oklahoma: Tulsa	WLAL
Chicago	WENR	Pennsylvania:	
Chicago (portable)	WHBM	Johnstown	WHBP
Downers Grove	WHBT	Philadelphia	WHBW
Indiana:		Punxsutawny	WHBX
Anderson	WHBU	Rhode Island: Pawtucket	WHBO
Logansport	WHBL	Tennessee: Memphis	WHBQ
Kansas: Manhattan	KFVH	Texas:	
Michigan:		Fort Worth	KFJZ
Flint	WTHS	Houston	KFVI
Owosso	WSMR	Wisconsin:	
New York:		Madison	WIBA
Brooklyn	WHAP	West De Pere	WHBY
New York	WMCA		
Richmond Hill	WBOQ		
Rochester	WHEC		

Stations broadcasting market or weather reports, music, concerts, lectures, etc., alphabetically by call signals

Call signal	Location of station	Station operated and controlled by—	Power (watts)	Wave length	Frequency (kilocycles)
KFJZ	Fort Worth, Tex., 400 West Seventh Street.	W. E. Branch	50	254	1,180
KFVC	Camden, Ark., 214 South Adams Street.	Bensberg's Music Co	10	242	1,240
KFVD	San Pedro, Calif., 1826 South Pacific Avenue.	McWhinnie Electric Co	50	205.4	1,460
KFVH	Manhattan, Kans., 221 Poynts Street.	Whan Radio Shop	10	218.8	1,370
KFVI	Houston, Tex	Fifty-sixth Cavalry Brigade, Headquarters Troop.	10	245	1,210
WADC	Akron, Ohio	Allen Theater	100	258	1,160
WBOQ	Richmond Hill, N. Y., 70 Van Wyck Boulevard.	A. H. Grebe & Co	100	236	1,270
WDBK	Cleveland, Ohio, 13918 Union Avenue.	M. F. Bros Furniture, Hardware and Radio Store.	100	227	1,320
WENR	Chicago, Ill	All American Radio Corporation			
WGBL	Elyria, Ohio, 630 Ledi Street	Elyria Radio Association	10	227	1,320
WHAP	Brooklyn, N. Y., 290 Flatbush Avenue.	Wm. H. Taylor Finance Corporation.	50	240	1,250
WHBL	Logansport, Ind., 1214 Erie Avenue.	James H. Slusser	50	220	1,360
WHBM	Chicago, Ill. (portable), 1536 South State Street.	C. L. Carrell	20	252	1,190
WHBN	St. Petersburg, Fla	First Avenue Methodist Church	10	268	1,160
WHBO	Pawtucket, R. I	Young Men's Christian Association.	50	231	1,300
WHBP	Johnstown, Pa., 101 Main Street	Johnstown Automobile Co	10	256	1,170
WHBQ	Memphis, Tenn., Bellevue and Peabody Avenues.	Men's Fellowship Class of St. John's M. E. Church South.	10	238	1,260
WHBR	Cincinnati, Ohio, 3564 Vine St	Scientific Electric & Mfg. Co	20	215.7	1,390
WHBS	Mechanicsburg, Ohio	Edward W. Locke	10	208.2	1,440
WHBT	Downers Grove, Ill., 332 North Prince Avenue.	Thomas W. Tizzard, jr	10	206.8	1,450
WHBU	Anderson, Ind., 1002 Meridian Street.	B. L. Bing's Sons	10	218.8	1,370
WHBV	Columbus, Ga., 2014 Talbot Avenue.	Fred Rays Radio Shop	20	244	1,230
WHBW	Philadelphia, Pa., 4916 Chestnut Street.	D. R. Klemle	100	215.7	1,390
WHBX	Punxsutawny, Pa., 206 Greenwood Avenue.	J. W. Bowser	50	212.6	1,410
WHBY	West De Pere, Wis	St. Norbert's College	50	259	1,200
WHEC	Rochester, N. Y., 36 South	Hickson Electric Co	100	268	1,120
WIBA	Madison, Wis	Capital Times Studio	100	236	1,270
WIBC	St. Petersburg, Fla., 434 Second Avenue North.	L. M. Tate Post No. 30, Veterans of Foreign Wars.	100	222	1,350
WLAL	Tulsa, Okla	First Christian Church	150	250	1,200
WAMC	New York, N. Y	Hotel McAlpin (Greely Square Hotel Co.)	500	340.7	880
W8MH	Owosso, Mich., 207 Washington Street.	Shattuck Music House	10	240	1,250
WTHS	Flint, Mich	Flint Senior High School	250	218.8	1,370

Government land stations, alphabetically by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1924, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave length	Service	Hours	Station controlled by—
France Field, Canal Zone (Cristobal).[1]	WYP	1,500	O		United States Army.
St. John, Virgin Islands[2]	NBO	347, 1684	O	X	United States Navy.

[1] Range, 250; United States Army v. t. telegraph; hours, 7 a. m.–7 p. m.
[2] Loc. O. 66 47' 48'', N. 18 20' 03''; system, United States Navy v. t. tapelhone and United States Navy, 1,000.

Government ship stations, alphabetically by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1924, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave length	Service	Hours	Station controlled by—
Mississippi [1]	WYCT	600, 700	O	X	War Department, Mississippi River Commission.

[1] Range, 100; system, United States Army v. t. telegraph.

Government land and ship stations, alphabetically by call signals

[b=ship station; c =land station]

Call signal	Name of station	Call signal	Name of station
NBO	St. John, Virgin Islands.....c	WYP	France Field, Canal Zone (Cristobal).c
WYCT	Mississippi.....b		

Special land stations, alphabetically by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1924]

Station	Call signal	Station controlled by—
Brooklyn, N. Y.	2XN	Peoples Pulpit Association, 124 Columbia Heights.
Buffalo, N. Y.	8YP	Seneca Vocational School.
Dayton, Ohio	8XAK	S. M. K. Radio Corp., 39 East Third Street.
New Haven, Conn.	1XB	Doolittle Radio Corp., 115 Crown Street.
New York, N. Y.	2XT	R. C. A.
Santa Monica, Calif.	6XAG	Edward N. Willis, 921 Pennsylvania Avenue.
Schenectady, N. Y.	2XAA	Watson P. Dutton, Route 58, Box 30.
Tucson, Ariz.	6XAW	University of Arizona.
Washington, D. C.	3XAA	Catholic University of America.

Special land stations grouped by districts

Call signal	District and station	Call signal	District and station
1XB	First district: New Haven, Conn.		Sixth district:
	Second district:	6XAG	Santa Monica, Calif.
2XAA	Schenectady, N. Y.	6XAW	Tucson, Ariz.
2XN	Brooklyn, N. Y.	8XAK	Eighth district:
2XT	New York, N. Y.	8YP	Dayton, Ohio.
3XAA	Third district: Washington, D. C.		Buffalo, N. Y.

ALTERATIONS AND CORRECTIONS

COMMERCIAL LAND STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1924, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

BEAUMONT, TEX.—W. l., *600*, 685.
BELFAST, ME. (WCE).—Hours, X.
BELFAST, ME. (WGU).—Hours, X.
BOLINAS, CALIF. (KET).—W. l., strike out 99.
CANDLE, ALASKA.—W. l., *600*, 625, 725.
CAPE CHACON, ALASKA.—W. l., *600*, 900.

CARLISLE, ALASKA.—W. l., *600*, 675, 1,610.
CEIBA, P. R.—W. l., *600*, 1610.
CHIGNIK, ALASKA (KNP).—System, R. C. A., 1000; w. l., *600*, 625, 706, 1,650.
CHOMLY, ALASKA.—W. l., *600*, 900, 1,650; hours, 7 a. m.–midnight.
DALY, ALASKA.—W. l., *600*, 725.
DEARBORN, MICH.—Range, 150.
EGEGIK, ALASKA.—W. l., *600*, 706, 900.
EKUK, ALASKA.—System, Halcun, 1000; w. l., *600*, 650, 900.
FLINT, MICH.—Range, 150.
FORT MORGAN, ALA.— W. l., *600*, 730, 1713.
GREENSBURG, PA.—W. l., 1199.
HILO, HAWAII.—W. l., 550, *600*.
HONOLULU, HAWAII (KOG).—W. l., 550, *600*.
HUNTERS BAY, ALASKA.—W. l., *600*, 700.
KASAAN, ALASKA.—W. l., *600*, 700.
KAUNAKAKAI, HAWAII.—W. l., 550, *600*.
KAWAIHAE, HAWAII.—W. l., 550, *600*.
KENAI, ALASKA (KLD).—W. l., *600*, 725.
KOGGIUNG, ALASKA (KVV).—W. l., *600*, 630, 900, 1,600.
LOCKANOK, ALASKA.—System, K. & C., 1,000; w. l., *600*, 900.
LOS ANGELES, CALIF. (KVT).—W. l., strike out 300.
NEW BRUNSWICK, N. J. (WIR).—W. l., 74.
NEW ORLEANS, LA.—W. l., strike out 300.
NUSHAGAK, ALASKA (KKAE).—W. l., 550, *600*, 900, 1,650.
PILLAR BAY, ALASKA.—W. l., *600*, 725.
PYBUS BAY, ALASKA.—W. l., *600*, 900, 1,650; hours, 7 a. m.–midnight.
QUADRA, ALASKA (KHD).—W. l., *600*, 900, 1,650; hours, 7 a. m.–midnight.
QUADRA, ALASKA (KOR).—W. l., *600*, 700.
ROCHESTER, N. Y.—W. l., 135, 145.
ROSE INLET, ALASKA.—W. l., *600*, 900, 1,650; hours, 7 a. m.–midnight.
SAN DIEGO, CALIF. (KVU).—W. l., strike out 300.
UYAK, ALASKA.—W. l., *600*, 725.
WAHIAWA, HAWAII.—Range, 200–400; w. l., strike out 300.
WAILUKU, HAWAII.—W. l., 550, *600*.
WARREN, ALASKA.—W. l., *600*, 725, 1,610.
WYANDOTTE, MICH.—W. l., 1,790; service, P.
YAKUTAT, ALASKA.—W. l., *600*, 900.
YES BAY, ALASKA.—W. l., *600*, 900, 1,650; hours, 7 a. m.–midnight.
Strike out all particulars of the following-named stations: Culver City, Calif. (KZY) and Los Angeles, Calif. (KWH).

COMMERCIAL SHIP STATIONS, ALPHABETICALLY BY NAMES OF VESSELS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1924, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

ABERCOS.—W. l., 450, *600*, 706, 800, 875.
BANNACK.—Station operated and controlled by I. W. T. Co.
B. H. TAYLOR.—System, W. S. A. Co., 1,000; w. l., *600*, 706.
BIBBCO.—W. l., 450, *600*, 706, 800.
BRUSH.—W. l., 450, *600*, 706, 800, 875.
BURNWELL.—Name changed to Alpha.
CASPER.—System, Navy-W. S. A. Co., 1,000; w. l., 450, *600*, 706, 800.
CASTLE TOWN.—Station operated and controlled by I. W. T. Co.
CETHANA.—W. l., *600*, 706; rates, 8 cents per word; station operated and controlled by owner of vessel.
CITY OF LOS ANGELES.—System, Navy-R. C. A., 1,000 and F. T. Co. arc; w. l., *600*, 706, 800, 1,800, 2,100, 2,400.
CITY OF SPOKANE.—W. l., 450, *600*, 706, 800, 875.
COLDWATER.—W. l., *600*, 706, 800.
COMMERCIAL GUIDE.—Range, 400; w. l., 450, *600*, 706, 800.
COMMERCIAL SPIRIT.—W. l., 450, *600*, 706, 800.
CONEHATTA.—W. l., 450, *600*, 706, 800.
CUBA (KDLK).—W. l., 450, *600*, 800.
DELFINA.—W. l., *600*, 706, 800.
ELENA VALDEZ.—Station operated and controlled by owner of vessel.
EOCENE.—Station operated and controlled by I. W. T. Co.
FELTORE.—W. l., *600*, 706, 800.

FREDERIC EWING.—W. l., *600*, 706, 800.
GOVERNOR JOHN LIND.—System, Navy-W. S. A. Co., 1,000; w. l., *600*, 706, 800.
HADNOT.—System, Navy-W. S. A. Co., 1,000; w. l., *600*, 706, 800.
SUDURCO.—W. l., 450, *600*, 706, 800.
HALEAKALA (KORL).—W. l., 450, *600*, 706, 800.
HAMILTON.—System, Lowenstein, 1,000 and I. W. T. Co. arc; w. l., *600*, 706, 800, 1,800, 2,100, 2,400.
HENRY S. GROVE.—W. l., *600*, 706, 1,800, 2,100, 2,400.
HERBERT G. WYLIE.—W. l., 450, *600*, 706, 800.
ILLINOIS (KFMC).—Goltra Barge Line owner of vessel.
IOWA.—Goltra Barge Line owner of vessel.
JANE NETTLETON.—W. l., *600*, 706, 800.
JOHN A. KLING.—W. l., *600*, 706, 800; station operated and controlled by owner of vessel.
KATHERINE.—Call signal changed to KZBB.
LAKE HARMINIA.—Station operated and controlled by R. C. A.
LANCASTER.—W. l., *600*, 706, 800.
LEHIGH.—W. l., 450, *600*, 706, 800.
LILLIAN.—W. l., *600*, 706, 800.
MAJOR WHEELER.—W. l., *600*, 706, 800.
MAKENA.—System, Navy-R. C. A., 1,000; w. l., *600*, 800.
MAUL.—Range, 100–300; system, R. C. A. v. t. telephone and telegraph and R. C. A., 1,000; w. l., *600*, 706, 800, 870.
MEXICO.—System, R. C. A., 1,000; w. l., *600*, 706, 800.
MILLINOCKET.—W. l., *600*, 706, 800.
MISSOURIAN.—W. l., 450, *600*, 706, 800, 1,800.
M. J. SCANLON.—System, Navy-Lowenstein, 1,000; w. l., *600*, 706, 800; Hammond Lumber Co. owner of vessel; station operated and controlled by R. C. A.
MOHAWK.—System, Navy-Lowenstein, 1,000; w. l., *600*, 706, 800, 875.
MONTPELIER.—System, R. C. A., 1,000; w. l., *600*, 706, 800; station operated and controlled by owner of vessel.
MOUNT EVANS.—W. l., 450, *600*, 706, 800, 875.
MUNSOMO.—Range, 200; w. l., *600*, 706, 800; station operated and controlled by I. W. T. Co.
NEW HAVEN.—System, Navy-Lowenstein, 1,000; w. l., *600*, 706, 800, 875.
NEWPORT.—W. l., *600*, 706, 800.
NORTH KING.—W. l., *600*, 706, 800.
OAKPARK.—W. l., 450, *600*, 706, 800.
OAKSPRING.—System, R. C. A., 1,000; w. l., 450, *600*, 706, 800.
ONEONTA.—Range, 150; w. l., *600*, 706.
ORLEANS.—Oriental Navigation Co. owner of vessel.
PERFECTION.—W. l., *600*, 706, 800.
PLYMOUTH (KXH).—System, Navy-Lowenstein, 1,000; w. l., *600*, 706, 800, 875.
PORTO RICO.—Station operated and controlled by I. W. T. Co.
PRESIDENT ARTHUR.—Range, 300–500; system, Navy-Lowenstein, 1,000 and Federal arc; w. l., 450, *600*, 706, 800, 875, 1,800, 2,100, 2,400; American Palestine Line owner of vessel; station operated and controlled by F. T. Co.
PRESIDENT GRANT.—Station operated and controlled by R. C. A.
ROBIN HOOD.—Station operated and controlled by I. W. T. Co.
ROMULUS (KZAN).—Name changed to *Leyte*.
ST. HELIERS.—W. l., 450, *600*, 706, 800.
SALVATION LASS.—W. l., 450, *600*, 706, 800, 875.
SANTA OLIVIA.—System, Navy-Lowenstein, 1,000.
SANTA ROSALIA.—W. l., 450, *600*, 706, 800.
S. O. Co. No. 93.—W. l., *600*, 706, 800.
SOCONY 94.—W. l., *600*, 706, 800.
SOUTHSEAS.—W. l., 450, *600*, 706, 800.
SPRAY (KFKO).—W. l., *600*, 706, 800.
STOCKTON.—W. l., *600*, 706, 800, 1,800, 2,100, 2,400.
STORM KING (KDJM).—W. l., 450, *600*, 706, 800.
SUCROSA.—W. l., 450, *600*, 706, 800.
TOMALVA.—System, Navy-R. C. A., 1,000; w. l., 450, *600*, 706, 800; station operated and controlled by R. C. A.
TONAWANDA.—System, K. & C., 1,000; w. l., *600*, 706, 800.
TULSAGAS.—Associated Oil Co. owner of vessel.
WALTER D. MUNSON.—Station operated and controlled by I. W. T. Co.
WEST CACTUS.—W. l., *600*, 706, 800.
WEST FARALON.—W. l., *600*, 706, 800, 2,100, 2,400.

WEST HARSHAW.—W. l., 450, *600*, 706, 800, 875.
WEST HESSELTINE.—W. l., 450, *600*, 706, 800.
WEST NERIS.—W. l., 450, *600*, 706, 800, 875.
WILLIAM G. MATHER.—Range, 200; system, Wireless Improvement Co., 1,000; w. l., *600*, 706, 800, 875; station operated and controlled by owner of vessel.
WILSON.—Range, 150; system, K. & C., 1,000; w. l., *600*, 706; service, PG; hours, X; rates, North and South American service 6 cents per word; station operated and controlled by owner of vessel.
W. M. TUPPER.—Station operated and controlled by I. W. T. Co.

Strike out all particulars of the following-named vessels:

Absaroka.
Agawam.
Alberta.
Alcona.
Allies.
Amolco.
Andrew Jackson.
Anthracite Bridge.
Arden.
Artemis (WQS).
Ashland County.
Askawake.
Asquam.
Assinippi.
Atlanta of Texas.
Babboosic.
Bar Harbor.
Bellingham.
Bensalem.
Bethlehem Bridge.
Betsy Bell.
Boston Bridge.
Bound Brook.
Brasher.
Calaveras.
Calicorock.
Calispell.
Calvert.
Cambridge (KIRR).
Cedar Spring.
Ceralvo.
Cerosco.
Cerro Gardo.
Chamberino.
Chamblee.
Chaparel.
Chappell.
Chattanooga.
Chautauqua.
Chepadoa.
Chickamauga.
Chipchung.
City of Alma.
City of Dalhart.
City of Elwood.
City of Fort Worth.
City of Lordsburg.
City of Rayville.
City of Sherman.
City of Vernon.
Clark Mills.
Cold Spring.
Connersville.
Consort.
Continental Bridge.
Cook.
Copalgrove.
Coperas.
Coquitt.
Corapeak.
Cornucopia.
Coskata.
Cottonwood.
Courageous.
Crainecreek.
Cranenest.
Crathorne.
Crawl Keys.
Craycroft.
Cushnoc.
Dade County.
Dallas.
Daniel Webster.
Dauperata.
Decatur Bridge.
Defiance.
Des Moines Bridge.
Detroit-Wayne.
Donald McKay.
East Chicago.
Easterling.
Eastern Breeze.
Eastern Queen.
Eastern Temple.
Escambia.
Fargo.
Federal Bridge.
Firtholiffe.
Franklin County.
Fresno.
Galveston.
Gaston.
Goodspeed.
Goree.
Greenland.
Gunston Hall.
Hartford.
Haslehurst.
Hawarden.
Haxtum.
Henry Clay.
Henry County.
H. F. Morse.
Hickman.
Hico.
Hillsborough County.
Hinckley.
Holyoke Bridge.
Houston.
Hybert.
Iceland.
Indiana Harbor.
Ingold.
James Otis.
Jefferson County.
Jekyl.
J. F. Penrose.
John Adams.
Johnson City.
John Stevens.
Kamesit.
Kismop.
Kittegaun.
Lake Akkra.
Lake Annette.
Lake Arline.
Lake Beacon.
Lake Belnona.
Lake Bledsoe.
Lake Buckeye.
Lake Canaveral.
Lake Cathcoon.
Lake Catherine.
Lake Charles.
Lake Charlotte.
Lake Chelan.
Lake Copley.
Lake Crystal.
Lake Delancey.
Lake Duncan.
Lake Eckhart.
Lake Eliko.
Lake Elkwood.
Lake Elenorah.
Lake Ellsworth.
Lake Elmwood.
Lake Elsab.
Lake Elsinore.
Lake Elva.
Lake Elwin.
Lake Ennis.
Lake Fagundus.
Lake Fairfax.
Lake Fanbush.
Lake Fandango.
Lake Fargo.
Lake Faribault.
Lake Farragut.
Lake Favonia.
Lake Faxon.
Lake Fear.
Lake Felden.
Lake Fenn.
Lake Fernalda.
Lake Figart.
Lake Fiscus.
Lake Fitch.
Lake Flagon.

Lake Flatonia.
Lake Floris.
Lake Fiume.
Lake Fouda.
Lake Fontana.
Lake Fontanet.
Lake Forsby.
Lake Fostoria.
Lake Fouche.
Lake Fray.
Lake Frecborn.
Lake Freed.
Lake Freeland.
Lake Freezeout.
Lake Frugality.
Lake Frumet.
Lake Fugard.
Lake Furlough.
Lake Furnas.
Lake Gakona.
Lake Galewood.
Lake Gardner.
Lake Gaspar.
Lake Gatun.
Lake Gedney.
Lake Getaway.
Lake Giddings.
Lake Gilta.
Lake Girardeau.
Lake Glasco.
Lake Glaucus.
Lake Globe.
Lake Glencoe.
Lake Gormania.
Lake Grainger.
Lake Grampian.
Lake Grampus.
Lake Grandon.
Lake Gratis.
Lake Grattan.
Lake Gravella.
Lake Gravity.
Lake Gretna.
Lake Grogan.
Lake Harris.
Lake Helen.
Lake Hemlock.
Lake Hewes.
Lakehurst.
Lake Inaba.
Lake Janet.
Lake Larga.
Lake Lemando.
Lake Lesa.
Lake Lida.
Lake Louise.
Lake Mary.
Lake Maurepas.
Lake Medford.
Lake Miraflores.
Lake Ontario.
Lake Osweya.
Lake Pachuta.
Lake Pearl.
Lake Pewaukee.
Lake Pleasant.
Lake Saba.
Lake Sapor.
Lake Shawano.
Lake Silver.
Lake Strabo.
Lake St. Clair.
Lake St. Regis.
Lakeview.
Lake Washburn.
Lake Wilson.
Lake Winona.
Lake Winooski.
Lake Yahara.
Lake Yelverton.
Lake Yemassee.
Lake Ypsilanti.
Lake Zaleski.
Lansdowne.
Lordship Manor.
Manatee.
Massa.
Massilon Bridge.
Masuda.
Mercer Victory.
Minooka.
Mitchell.
Monmouth.
Monroe.
Montgomery (KIJP).
Mount Shasta.
Mount Vernon.
Mt. Vernon Bridge.
Nantasket.
Nashaba.
National Bridge.
Nasco.
Neshobee.
New England.
New Orleans (KDFB).
New Windsor.
Nipmuc.
Noccalula.
Oakland.
Oklahoma City.
Oldham.
Orani.
Orion.
Osawatomie.
Oskaloosa.
Ozette.
Pagasset.
Palisades.
Pasadena.
Passaic Bridge.
Pawtucket.
Peekskill.
Phoenix Bridge.
Potter.
Poughkeepsie.
President Fillmore.
Proctor.
Quillwark.
Red Mountain.
Riverside Bridge.
Rock Island.
Rockport.
Sawokla.
Schuylkill Bridge.
Siletz.
Sioux Falls.
Star of Greenland.
Star of Russia.
Summerleaf.
Syros.
Tampa (KGVX).
Texarkana.
Tona.
Tonesit.
Triumph.
Tuckanuck.
Unicoi.
Vanada.
Virginia Bridge.
Wacosta.
Walden.
Wallkill.
Ward.
Wathena.
Waubesa.
Waukau.
Waukesha.
Wauwatosa.
Wawahachie.
West Alcon.
West Apaum.
West Ashawa.
West Cape.
West Compo.
West Cusseta.
Western Ally.
Western Chief.
Western City.
Western Hero.
Western Maid.
Western Star.
Western Wave.
Westford.
West Galeta.
West Hartley.
West Helix.
West Honaker.
West Hosokie.
West Lashaway.
Westmead.
Westmount.
West Raritana.
West View.
Westwood.
West Zeda.
West Zucker.
West Zula.
W. H. Talbot.
Wichita.
William H. Webb.
Willimantic.
Winona County.
Worcester.
Yaka.
Yalza.
Yomachichi.
Yosemite (KYS).

COMMERCIAL LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS

KIMS, *read* Alpha; KIZK, call changed to KZBB; KZAN, *read* Leyte; strike out all particulars following the call signals, KDAW, KDBW, KDCA, KDCD, KDCI, KDCN, KDCO, KDCZ, KDDF, KDEC, KDEZ, KDFB, KDFC, KDFX, KDGM, KDGS, KDHG, KDIK, KDIR, KDIX, KDJG, KDJK, KDKP, KDLM, KDMU, KDMV, KDNP, KDNR, KDOI, KDPN, KDQB, KDQE, KDQG, KDSM, KEBR, KEBS, KEBT, KECJ, KECK, KEDG, KEDM, KEFD, KEFJ, KEFK, KEFL, KEFM, KEGG, KEGJ, KEGP, KEGT, KEJD, KEJF, KEJK, KEJN, KEKG, KEKJ, KEKP, KEND, KENJ, KENP, KEPP, KEPQ, KEQB, KERF, KESN, KESZ, KETM, KEVB, KEVP, KEVS, KEZB, KEZC, KEZD, KEZF, KEZL, KEZZ, KFCE, KFD, KFFJ, KFH, KFNI, KGAE, KHE, KHW, KIBB, KIBG, KIBJ, KIBL, KICV, KIDD, KIDN, KIDS, KIDV, KIFK, KIFQ, KIGB, KIGG, KIJK, KIJP, KIJV, KIJX, KIJZ, KIKB, KIKD, KIKF, KIKL, KILM, KIMB, KIMJ, KIND, KINK, KINS, KINZ, KIPB, KIPD, KIQK, KIQN, KIRJ, KIRR, KIRV, KISN, KISV, KITC, KITF, KITG, KITM, KIU, KIVG, KIVM, KIXC, KIXN, KIXT, KIZJ, KIZR, KJUU, KKEO, KKOE, KLAO, KLAU, KLEA, KLEE, KLEU, KLOE, KLOI, KLOO, KLOU, KLUO, KMB, KMEU, KMII, KMIO, KMOO, KMUE, KMUU, KNAI, KNAO, KNAU, KOBD, KOBF, KOCD, KOCG, KOCN, KOCP, KOCQ, KOCS, KOCZ, KODG, KOFJ, KOFL, KOFT, KOFX, KOFZ, KOGK, KOGS, KOJP, KOJQ, KOJX, KOKK, KOKM, KOLJ, KOLK, KOLV, KOLZ, KOMR, KOMS, KOMX, KOMZ, KONJ, KONL, KONN, KONP, KONQ, KONX, KOPB, KOPP, KOQX, KORF, KOS, KOSF, KOSR, KOSS, KOSX, KOTF, KOTQ, KOTT, KOTV, KOVL, KOVX, KOXB, KOXJ, KOXK, KOZD, KOZN, KOZT, KOZV, KQEO, KQOO, KQUA, KQUO, KREI, KREO, KRII, KSII, KSOE, KSOO, KTAI, KTIO, KTOO, KTUE, KTUU, KUBP, KUBR, KUBS, KUCB, KUCD, KUCF, KUCG, KUCJ, KUCK, KUCR, KUCS, KUDM, KUFF, KUGR, KUKC, KUKD, KUKG, KULC, KULL, KUML, KUMV, KUNK, KUNS, KUPG, KUPX, KUQP, KUQN, KURB, KURN, KUTB, KUTK, KUTV, KUZM, KVAA, KVIO, KVOI, KVOO, KVOU, KVUE, KVUO, KVUU, KWA, KWH, KXAE, KXAU, KXEA, KXEO, KXIE, KXII, KXIO, KXOU, KXUE, KYS, KZA, KZAO, KZAU, KZIE, KZII, KZOA, KZOE, KZOI, KZUU, KZY, WBIA, WBUA, WBUI, WBUO, WCIA, WCIO, WCUA, WCUU, WDEI, WDIE, WDIO, WDIU, WDUI, WDUO, WDUU, WEU, WFAE, WFEI, WFOA, WFOU, WFUA, WGOO, WHH, WJIA, WJII, WKAI, WKAU, WKEI, WKEO, WKOO, WKUU, WKW, WLAI, WLEA, WLEO, WLEU, WLII, WLIO, WLO, WLUO, WLUU, WMEU, WNAA, WNAE, WNAI, WNIE, WNIU, WNL, WPAI, WPIO, WPIU, WQEO, WQS, WREA, WSEA, WSEU, WSOO, WSUA, WTAA, WTEE, WTEI, WTEO, WTEU, WTF, WTUI, WVAE, WVIA, WVUA, WWC, WXEO, WXUO, WZOE, WZOI, WZOO.

BROADCASTING STATIONS, BY CALL SIGNALS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1924]

KFBL (Everett, Wash.).—Power, 20.
KFCB (Phoenix, Ariz.).—Power, 50.
KFGH (Stanford University, Calif.).—W. l., 270, fy. kc., 1,110.
KFI (Los Angeles, Calif.).—Power, 2,000.
KFJI (Astoria, Oreg.).—W. l., 246, fy. kc., 1,220.
KFMR (Sioux City, Iowa).—Power, 100.
KFOJ (Moberly, Mo.).—Power, 10.
KFQY (St. Paul, Minn.).—Address 711 Dayton Avenue.
KFPT (Salt Lake City, Utah).—Call signal changed to KSL, power, 1,000; w. l., 299.8, fy. kc., 1,000.
KFQH (Burlingame, Calif.).—W. l., 220, fy. kc., 1,360.
KFRC (San Francisco, Calif.).—Station operated and controlled by City of Paris Dry Goods Co.; w. l., 268, fy. kc., 1,120.
KFRU (Bristow, Okla.).—Station operated and controlled by Etherical Radio Co.
KFUQ (San Francisco, Calif.).—Call signal changed to KJBS; w. l., 236, fy. kc., 1,270.
KFWA (Ogden, Utah).—W. l., 261, fy. kc., 1,150.
KJR (Seattle, Wash.).—Power, 1,000.
KJS (Los Angeles, Calif.).—Power, 750.

KLS (Oakland, Calif.).—W. l., 242, fy. kc., 1,240.
KOB (State College, N. Mex.).—Power, 750.
KOP (Detroit, Mich.).—Fy. kc., 1,080.
KTW (Seattle, Wash.).—Power, 750; w. l., 454.3, fy. kc., 660.
WABX (Mount Clemens, Mich.—near).—Power, 500; w. l., 246, fy. kc., 1,220.
WNJ (Newark, N. J.).—Power, 100.
WDBP (Superior, Wis.).—W. l., 242, fy. kc., 1,240.
WABN (La Crosse, Wis.).—Station operated and controlled by Ben A. Ott.
WDBR (Boston, Mass.).—W. l., 261, fy. kc., 1,150.
WSRO (Hamilton, Ohio).—Power, 100.
WHBB (Stevens Point, Wis.).—Station operated and controlled by Copps Co.
WBS (Newark, N. J.).—Power, 200.
WWL (New Orleans, La.).—Power, 100.
WGBG (Thrifton, Va.).—Power, 10.
WFBE (Seymour, Ind.).—Power, 10.
WCBD (Zion, Ill.).—Power, 1,500.
WDBX (New York, N. Y.).—Power, 50.
WAFD (Port Huron, Mich.).—W. l., 256, fy. kc., 1,170.
WEAH (Wichita, Kans.).—Power, 100.
WSL (Utica, N. Y.).—W. l., 242, fy. kc., 1,240.
WCBU (Arnold, Pa.).—Fy. kc., 1,360.
WCCO (St. Paul-Minneapolis, Minn.).—Power, 1,500.
WMH (Cincinnati, Ohio).—Call signal changed to WKRC; station operated and controlled by Kodel Radio Corp., 120 West Third Street; power, 1,000.
WBAX (Wilkes-Barre, Pa.).—Power, 10.
WHDI (Minneapolis, Minn.).—Power, 500.
WBBP (Petoskey, Mich.).—Power, 100; w. l., 238, fy. kc., 1,260.
WRAF (Laporte, Ind.).—Power, 100.
WABI (Bangor, Me.).—Station operated and controlled by Bangor Hydro-Electric Co.
WMU (Washington, D. C.).—Power, 50.
WEBZ (Savannah, Ga.).—Power, 50.
WWI (Dearborn, Mich.).—Power, 500.
WRR (Dallas, Tex.).—Power, 350.
WSAN (Allentown, Pa.).—Power, 50.
WABW (Wooster, Ohio).—Power, 50.
Strike out all particulars of the following-named stations: KDPT (San Diego, Calif.); KDYM (San Diego, Calif.); KDZE (Seattle, Wash.); KFCP (Ogden, Utah); KFEX (Minneapolis, Minn.); KFHR (Seattle, Wash.); KFJZ (Fort Worth, Tex.—Texas National Guard); KFKV (Butte, Mont.); KFLA (Butte, Mont.); KFLE (Denver, Colo.); KFNZ (Burlingame, Calif.); KFOD, Wallace, Idaho); KFQU (Richmond, Calif.); KEFH (Salt Lake City, Utah); KFQN (Portland, Oreg.); KFQX (Seattle, Wash.); KFRJ (Conway, Ark.); KFRO (Fort Worth, Tex.); KNT (Kukak Bay, Alaska); KWH (Los Angeles, Calif.); WAAN (Columbia, Mo.); WABH (Sandusky, Ohio); WCAV (Little Rock, Ark.); WCBO (Memphis, Tenn.); WCVB (Tullahoma, Tenn.); WCBW (Macon, Ga.); WDBI (St. Pertrsburg, Fla.); WEBX (Nashville, Tenn.); WIK (McKeesport, Pa.); WJAN (Peoria, Ill.); WKAN (Montgomery, Ala.); WMAH (Lincoln, Nebr.); WPAU (Moorhead, Minn.); WSAV (Houston, Tex.).

GOVERNMENT LAND STATIONS, ALPHABETICALLY BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1924, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

FORT STEVENS, OREG. (NZS-radio compass).—Call signal changed to NPE.
SAN DIEGO, CALIF. (regular station).—W. l., strike out 1,538, add 2,998.

GOVERNMENT LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS

NES (Fort Stevens, Oreg.), call signal changed to NPE.

SPECIAL LAND STATIONS, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1924]

CINCINNATI, OHIO (8XAY).—Changed to Harrison, Ohio.
OAKLAND, CALIF. (6XBL).—Changed to Berkeley, Calif., 902 Santa Fe Avenue.
Strike out all particulars of the following-named stations: Buffalo, N. Y. (8XAB); Clarendon, Va. (3XAR); Golden, Colo. (9XAI); Los Angeles, Calif. (6XAK); Minneapolis, Minn. (9XBM); Philadelphia, Pa. (3XA); Uyak, Alaska (7XAI).

MISCELLANEOUS

AMATEUR RADIO STATIONS RESTRICTED IN COMMUNICATION WITH COMMERCIAL OR GOVERNMENT STATIONS

[General Letter No. 285a]

APRIL 1, 1925.

To Supervisors of Radio and Owners of Amateur Radio Stations.

The regulations governing the operation of amateur stations, dated December 26, 1924, paragraph under intercommunication, are amended to read as follows: "Amateur stations are not permitted to communicate with commercial or Government stations unless authorized by the Secretary of Commerce, except in an emergency or for testing purposes which may be construed to cover official Government business. No variation of amateur wave lengths is permitted, and the amateur quiet hours restriction must be observed. This restriction does not apply to communication with small pleasure craft such as yachts and motor boats, which may have difficulty in establishing communication with commercial or Government stations."

D. B. CARSON, *Commissioner.*

Approved:
S. B. DAVIS, *Acting Secretary of Commerce.*

OPERATOR'S LICENSE SUSPENDED

License No. 8945, issued at New York, September 6, 1923, has been suspended for a period of 30 days on account of the holder of the license having violated article 6 of the International Convention service regulations, in that he carried on an unofficial conversation, and also for violation of article 8 of the International Convention, in that he caused interference to other stations.

NEW YORK HARBOR WEATHER CONDITIONS TRANSMITTED BY MARION AND TUCKERTON STATIONS

Weather conditions involving barometric pressure, temperature, wind direction, velocity, state of sky, state of sea, and visibility at Sandy Hook, N. J., are now broadcast for the benefit of navigation approaching New York harbor from the stations operated by the Radio Corporation of America at Marion, Mass. (WCC), on 2,200 meters, continuous wave, and at Tuckerton, N. J. (WSC). These observations are taken at 8 a. m. and 4 p. m., and are sent out at 9 a. m. and 5 p. m., seventy-fifth meridian, respectively.

CHANGE IN TIME SIGNAL OF WELLINGTON, NEW ZEALAND

The call signal of Hector Observatory radio station (VLY) is now used for these wireless time signals instead of the call signal of Wellington (VLW). The time signals are, however, still automatically transmitted through the latter station. The preliminary signals in both groups of time signals have been amended to:

— (dash of 2 seconds duration) VLY sent every 15 seconds

The termination of the signals is given by:

$\overline{\text{AR}}$ VLY $\overline{\text{VA}}$

The approximate location of this station is latitude 41° 16′ S., longitude 174° 46′ E.—*Admiralty Notice to Mariners, No. 280, 1925, London.*

CHANGE IN WAVE LENGTH OF FLAMBOROUGH RADIO COMPASS STATION

On and after April 1, this year, Flamborough radio compass station, call signal BVN, position 54° 06′ 49″ N., 0° 04′ 56″ W., will use a wave length of 600 meters only, both for transmitting and receiving instead of 450 meters as formerly.

SAN FRANCISCO AND BLUNTS REEF LIGHT VESSELS FOG SIGNALS

Masters of vessels and radio operators are advised that weather reports will not be furnished by these fog-signal stations when the radio fog signal is in operation and are requested not to ask for weather reports during such periods.

EXPERIMENTAL BROADCASTING OF ICE REPORTS BY SCHEVENINGEN STATION

Ice reports containing data concerning ice conditions in Netherlands harbors and approaches will be broadcast experimentally, as occasion arises, by Scheveningen radio station, call letters PCH, on 1,800 meters, apart at 1,115 and 2,315 G. M. T., daily, the former transmission following the weather bulletin and the

latter preceding the navigational warning. These reports will be transmitted in code, the particulars of which are given below.

Beginning with the words "Ijsbericht, ice report," the code consists of two groups of four figures, and as the harbors concerned are always signaled in the same order as given in the list, each figure, therefore, represents the navigational conditions existing in the locality designated by its relative position.

List of harbors	Navigational conditions
(a) Delfzijl (Ems).	1. Navigation practicable.
(b) Harlingen (Zuider Zee).	2. Navigation difficult for sailing vessels.
(c) Amsterdam (North Sea Canal).	4. Navigation very difficult; closed for sailing vessels.
(d) Zaandam (Voorzaan).	5. Navigation only practicable for large steamers.
(e) Helder (Zuider Zee).	7. Navigation closed.
(f) Rotterdam (Waterway).	
(g) Dordrecht (North).	
(h) Dordrecht (Mallegat).	

Example.—Ijsbericht ice report 4511 1111.

Decoded.—Ice intelligence, ice report. Delfzijl: Navigation very difficult; closed to sailing vessels. Harlingen: Navigation only practicable for large steamers. Amsterdam, Zaandam, Helder, Rotterdam, Dordrecht (North), and Dordrecht (Mallegat): Navigation practicable.

The broadcasting of ice reports will begin when navigation is closed to small steamers and motor vessels at any of the harbors named above and will cease when navigation is reopened (vide Code Signal 5).—*Notice to Mariners 4 (165), Admiralty, London, 1925.*

REGULATIONS GOVERNING THE USE OF RADIO ON FOREIGN WARSHIPS IN GRECIAN WATERS

ARTICLE 1.—Foreign warships in the waters of Greek naval ports and naval bases, or at anchorage near them, must, in order to use their radiotelegraphic and radiotelephonic apparatus, ask permission to do so from the commander of the naval base or the port, who also must be informed of the system used, the wave length made use of in sending messages, and the hours proposed for sending.

ART. 2.—Foreign warships in Greek ports where there are no naval bases must comply with the regulations following: Transmitting with a wave length of 600 meters, except for sounding out a danger signal or answering such a signal, is forbidden. Interference with messages of Government radiotelegraphic stations, stationary or portable, is forbidden. Transmitting must be cut off upon request by (*a*) any naval authority, (*b*) the port authorities, and (*c*) any permanent shore station. Prolonged transmission should be avoided if the waves transmitted are not purely continuous. If there be Greek warships in port, the consent of the ranking commander should be sought. (Athens, October 25, 1924.)—*Received through the Department of State, Washington, Hydrographic Bulletin, March 18, 1925.*

CHANGE IN WAVE LENGTH OF KARACHI STATION

Emissions by the Karachi, British Indies, coast station, of information concerning meteorological conditions and information destined to navigators, when there is any, are now sent on 600 meters instead of 2,000 meters as formerly.

STANDARD FREQUENCY STATIONS

As a result of measurements by the Bureau of Standards upon the transmitted waves of a limited number of radio transmitting stations, data are given in each month's Radio Service Bulletin on such of these stations as have been found to maintain a sufficiently constant frequency to be useful as frequency standards. There may be many other stations maintaining their frequency just as constant as these, but these are the only ones observed. There is, of course, no guaranty that the stations named below will maintain the constancy shown. The transmitted frequencies from these stations can be utilized for standardizing wave meters and other apparatus by the procedure given in Bureau of Standards Letter Circular No. 92, Radio Signals of Standard Frequencies and Their Utilisa-

tion. A copy of that letter circular can be obtained by a person having actual use for it upon application to the Bureau of Standards, Washington, D. C.

Station	Owner	Location	Assigned frequency (kilocycles)	Period covered by measurements (months)	Number of times measured	Deviations from assigned frequencies noted in measurements	
						Average	Greatest since Feb. 20, 1925
						Per cent	*Per cent*
WQL	Radio Corporation of America.	Coram Hill, L. I., N. Y.	17.13	3	25	0.1	0.2
NSS	United States Navy	Annapolis, Md.	17.50	19	142	.2	.6
WCI	Radio Corporation of America.	Barnegat, N. J.	17.95	1	7	.1	.3
WGG	do	Tuckerton, No. 1, N. J.	18.86	19	147	.2	.2
WSO	do	Marion, Mass.	25.80	19	111	.3	.4
WEAF	American Telegraph & Telephone Co.	New York, N. Y.	610	3	35	.0	.0
WCAP	Chesapeake & Potomac Telephone Co.	Washington, D. C.	640	18	81	.1	.1
WRC	Radio Corporation of America.	do	640	15	61	.1	.2
WSB	Atlanta Journal	Atlanta, Ga.	700	18	70	.1	.1
WGY	General Electric Co.	Schenectady, N. Y.	790	21	115	.1	.1
WBZ	Westinghouse Electric & Manufacturing Co.	Springfield, Mass.	[1] 900	11	29	.1	.1
KDKA	do	East Pittsburgh, Pa.	[2] 970	18	143	.1	.3

[1] New frequency assigned Jan. 15, 1925 (formerly 890 kilocycles).
[2] New frequency assigned Dec. 31, 1924 (formerly 920 kilocycles).

COOPERATIVE INVESTIGATION OF RADIO WAVE PHENOMENA

The continuing expansion in the uses of radio and the unexpected phenomena encountered in the very high frequencies now so extensively used make important the determination of the laws and causes of the vagaries of radio transmission. Fuller knowledge of these phenomena is necessary before radio can fully grapple with the limitations at present imposed upon it by atmospheric disturbances, interference, and fading. To this end a number of university and other laboratories are engaging in a measurement program under the direction of the Bureau of Standards. The work in view includes measurements on field intensity, fading, direction variation, and atmospheric disturbances at the broadcast and higher frequencies.

The first series of observations were made in connection with the solar eclipse of January 24. Cooperating in the program initiated by G. W. Pickard, quantitative measurements of the signal intensity variations and direction shifts of transmission from several stations were conducted by the Bureau of Standards and a number of other laboratories, most of them in the northeastern part of the United States and southern part of Canada. Records were made on the morning of the eclipse and, for comparison purposes, on two days before and two days after. These observations showed the eclipse gave rise to effects intermediate between those characterizing day and night. Much interest was stimulated in the measurement work, and an increasing number of laboratories are preparing apparatus for participation in the further work.

In a second series of observations started on March 24 the object of study was the marked changes of transmission occurring at sunset. All participants concentrated on the transmission of a single broadcasting station, WGY of the General Electric Co., Schenectady, N. Y., during the 2½ hours centering approximately at sunset (5 to 7.30 p. m.). In order to include a variety of weather conditions, measurements were made on six days scattered over the period of March 24 to April 3. The results of these observations, which have just closed, will be studied and a report issued at a later date.

The details of future cooperative tests to be arranged will be determined to a considerable extent by the cumulative results of the completed tests. Labora-

tories interested in measurements of radio wave phenomena are invited to communicate with the Bureau of Standards, Washington, D. C., relative to participation in the investigation. The apparatus required for recording signal intensity variations can be constructed for the most part from the equipment of the average college or commercial radio laboratory. Measurements of field strength and direction require the construction or assembly of somewhat specialized apparatus.

STANDARD RADIO FREQUENCY TRANSMISSIONS, APRIL TO JULY

The Bureau of Standards transmits twice a month radio signals of definitely announced frequencies for use by the public in standardizing wave meters and transmitting and receiving apparatus. The signals are transmitted from the bureau's station, WWV, Washington, D. C., and from station 6XBM, Stanford University, California.

The transmissions are by unmodulated continuous-wave telegraphy. A complete frequency transmission includes a "general call," a "standard frequency signal," and "announcements." The "general call" is given at the beginning of the 8-minute period and continues for about 2 minutes. This includes a statement of the frequency. The "standard frequency signal" is a series of very long dashes with the call letters (WWV or 6XBM) intervening. This signal continues for about 4 minutes. The "announcements" are on the same frequency as the "standards frequency signal" just transmitted and contain a statement of the frequency. An announcement of the next frequency to be transmitted is then given. There is then 4-minute interval while the transmitting set is adjusted for the next frequency.

The signals can be heard and utilized by stations equipped for continuous-wave reception at distances within about 500 to 1,000 miles from the transmitting stations. Information on how to receive and utilize the signals is given in Bureau of Standards Letter Circular No. 92, which may be obtained on application from the Bureau of Standards, Washington, D. C. Even though only a few points are received, persons can obtain as complete a wave-meter calibration as desired by the method of generator harmonics. Information on that method will be supplied by the Bureau on request.

The schedule of standard frequency signals from both the Bureau of Standards and Stanford University is as follows:

Schedule of frequencies in kilocycles

[Approximate wave lengths in meters in parentheses]

Time[1]	Apr. 6	Apr. 20	May 5	May 20	June 5	July 29
10 to 10.08 p. m.	1,500 (200)	3,000 (100)	125 (2,400)	300 (1,000)	550 (545)	1,500 (200)
10.12 to 10.20 p. m.	1,650 (182)	3,300 (91)	133 (2,254)	315 (952)	630 (476)	1,650 (182)
10.24 to 10.32 p. m.	1,800 (167)	3,600 (83)	143 (2,097)	345 (869)	730 (411)	1,800 (167)
10.36 to 10.44 p. m.	2,000 (150)	4,000 (75)	155 (1,934)	375 (800)	850 (353)	2,000 (150)
10.48 to 10.56 p. m.	2,200 (136)	4,400 (68)	166.5 (1,800)	425 (705)	980 (306)	2,200 (136)
11 to 11.08 p. m.	2,450 (122)	4,900 (61)	205 (1,463)	500 (600)	1,130 (265)	2,450 (122)
11.12 to 11.20 p. m.	2,700 (111)	5,400 (56)	260 (1,153)	600 (500)	1,300 (231)	2,700 (111)
11.24 to 11.32 p. m.	3,000 (100)	6,000 (50)	315 (952)	666 (450)	1,500 (200)	3,000 (100)

[1] Eastern standard time for WWV, Washington, D. C. Pacific standard time for 6XBM, California.

REFERENCES TO CURRENT RADIO PERIODICAL LITERATURE

This is a monthly list of references prepared by the Radio Laboratory of the Bureau of Standards and is intended to cover the more important papers of interest to the professional radio engineer which have recently appeared in technical periodicals. The number at the left of each reference classifies the reference by subject, in accordance with the scheme presented in A Decimal Classification of Radio Subjects—An Extension of the Dewey System, Circular No. 138, a copy of which may be obtained for 10 cents from the Superintendent of Docu-

ments, Government Printing Office, Washington, D. C. Further information about these lists, availabilities of previous lists, and of the several periodicals is contained in the extended statement preceding the early lists as published in the Radio Service Bulletin prior to April, 1923, and also in May and September, 1923.

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